

What is claimed is:

1. A three phase supervisory circuit for detecting fault conditions in an input AC power signal, comprising:

a first sensing circuit for detecting a voltage level for a first phase of said AC power signal and comparing said voltage level of said first phase to a threshold value;

a second sensing circuit for detecting a voltage level for a second phase of said AC power signal and comparing said voltage level of said second phase to said threshold value;

a third sensing circuit for detecting a voltage level for a third phase of said AC power signal and comparing said voltage level of said third phase to said threshold value;

a delay circuit for delaying operation of said sensing circuits for a predetermined period of time; and

an activation circuit for receiving indication signals from said sensing and delay circuits, said indication signals indicative of whether said predetermined period of time has elapsed and said voltage levels of said phases have met said threshold value.

2. The three phase supervisory circuit of claim 1, wherein said predetermined time period is approximately between one and two seconds in duration.

3. The three phase supervisory circuit of claim 1, wherein said threshold value is about 12 volts.

4. The three phase supervisory circuit of claim 1, wherein said indication signals represents at least one condition selected from the group consisting of:

a first positive indication that said input AC signal meets the threshold value;

a second positive indication that said predetermined time period elapsed;

a first negative indication that said input AC signal does not meet the threshold value; and

a second negative indication that said predetermined period of time does not elapse.

5. The three phase supervisory circuit of claim 1, wherein said predetermined period of time provides for stabilization of capacitors in said three phase circuit upon initially powering said three phase supervisory circuit.

6. The three phase supervisory circuit of claim 4, wherein in response to receiving said first and second positive indication signals said activation circuit outputs an AC power signal.

7. The three phase supervisory circuit of claim 6, wherein each of said sensing circuits has to detect a proper voltage level in a respective phase before a positive indication is provided to said activation circuit.

8. The three phase supervisory circuit of claim 1, further comprising a contactor coil connected to said activation circuit and a plurality of ground fault circuit interrupter (GFCI) receptacles.

9. The three phase supervisory circuit of claim 8, wherein said GFCI receptacles are protected from AC faults via said three phase supervisory circuit.

10. The three phase supervisory circuit of claim 1, wherein said three phase supervisory circuit operates as a tester for allowing testing of AC power signals.

11. The three phase supervisory circuit of claim 1, wherein said fault conditions comprise at least one of a phase reversal, a phase loss and undesirable changes in a phase voltage level.

12. A method for detecting ground fault conditions in an input AC power signal via a three phase supervisory circuit, the method comprising:

- detecting a voltage level for three phases of said AC input power signal;

- comparing said detected phase voltage levels to a threshold value;

- delaying operation of said three phase supervisory circuit for a predetermined period; and

- providing results from said steps of comparing and delaying to an activation circuit.

13. The method of claim 12, wherein said predetermined period is approximately between one and two seconds in duration.

14. The method of claim 13, wherein said predetermined period occurs each time said three phase supervisory circuit is initially powered.

15. The method of claim 12, wherein said threshold value is about 12 volts.

16. The method of claim 12, further comprising:  
providing an output AC signal upon a determination that no fault conditions were found in said AC input signal.